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- (74) Agent: JOHNSEN, Venche, Høines; Norsk Hydro ASA, N-0240 Oslo (NO).
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- (71) Applicant (for all designated States except US): NORSK HYDRO ASA [NO/NO]; N-0240 Oslo (NO).
- (72) Inventors; and
- (75) Inventors/Applicants (for US only): BREIVIK, Turid, Risdal [NO/NO]; Uranusveien 22, N-3942 Porsgrunn (NO). JULSRUD, Stein [NO/NO]; Gregorius Dagssons gate 190, N-3713 Skien (NO). NAAS, Tyke [NO/NO]; Sam Eydes gate 23, N-3936 Porsgrunn (NO). VIGELAND, Bent, Erlend [NO/NO]; Jønholtunet 14, N-3921 Porsgrunn (NO).
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(54) Title: MEMBRANE AND USE THEREOF

(57) Abstract: The present invention relates to a solid multicomponent membrane for use in a reactor where the membrane comprises a mixed metal oxide having a structure represented by the formula: $\text{La}_{1-x} \text{Ca}_x (\text{Fe}_{1-y} \text{Ti}_y \text{Al}_z)_w \text{O}_{3-d}$ wherein x, y, z, w, and d each represent a number such that $0.1 \leq (y+z) \leq 0.8$, $0.15 \leq (x+y) \leq 0.95$, $0.05 \leq (x-y) \leq 0.3$, $0.95 < w < 1$, and d equals a number that renders the compound charge neutral and is not less than zero and not greater than about 0.8. Furthermore, the present invention relates to a use of the membrane in a reactor for generating heat or for generating synthesis gas.